

R E M A R K S:

Note that Claim's 5 and 16 are retyped above, without amendment, for the Examiner's convenience.

Applicant wishes to thank Examiner Roseen for the telephone interview which was so courteously extended to Applicant August 22, 1988. As requested by the Examiner in the interview, Applicant has amended the specification to add Figure's 9 and 10, showing typical waveforms and their relationships, which would apply to Figure's 4 and 7, as well as providing descriptions and explanations thereof. Applicant has also amended the claims to remove recitation of resistances "extending" or "stretching" between signals. Additionally, Applicant has amended the claims to correct the other 35 USC 112 type rejections.

The Examiner has objected to the use of the wording "further phase shifted signal" and has pointed out that a further phase shifted signal may have a phase shift equal to the input signal or a phase shift equal to the phase shifted input signal. While it is correct that the further phase shifted signal could be shifted 360° with respect to the phase shifted signal, Applicant feels that as worded, the further phase shifted signal would be understood to be a signal which is not phase shifted to the equivalent relative phase of the phase shifted signal. Applicant has however added a phrase to Claim's 1, 13, 15 and 21 to further specify the phase shift relationships by reciting that the input, phase shifted and further phase shifted signals all have different relative phases.

Claim 3 has been amended to refer to the even further phase shifted signal of Claim 4.

Claim 7 has been amended to refer to the even further phase shifted signal of Claim 4.

believes he removed the word "counter" in the previous amendment, and has retyped Claim 7 as he believes it is currently amended.

In Claim's 10 - 12, Applicant believes that the recited function is supported by the disclosure, in particular by the description of alternative embodiments of 7A and 9A of Figure's 2 and 4, as discussed starting on Page 10, Line 24, along with the example of Fig. 7.

Claim 15 has been amended to remove "another signals back" and more clearly phrase the relationships of the taps.

Claim's 13 and 14 have been amended to more clearly specify what signals are altered by the multipliers. It should be noted that the function of the multipliers operating as a variable resistance to pass a portion of the applied signal is found in the specification, Page 12, Lines 2-8. This description also explains how the control voltage controls the multipliers to pass the portions.

Claim's 17, 21, 22 and 25 have been amended to specify that the terminals receive signals rather than being responsive to signals.

Claim 18 has been amended to recite an adjustable tap.

Claim 19 has been amended to recite that a portion of one or two phase shifted signals is passed in response to the adjustment element.

Claim 21 has been amended to more clearly recite the portions which are passed.

Claim 23 has been amended to recite that the combination is one of portions.

rejection over Hoff et. al. For example, Hoff shows only two phase shifted signals applied to the two terminals of either 18 or 22, and the Claims 1, 15, 17 and 21 call for more than two terminals, inputs or taps. Claims 13 and 16 call for multipliers not shown by Hoff.

Additionally, the amendments are made in view of the 35 USC 103 rejections over Paine. Paine shows a diode ring, controlled by a pair of control voltages, generated by a circular resistance with dual wipers arranged at 90°. The diodes are caused to be forward biased, thus conducting a phase shifted signal applied thereto, or reverse biased, thus blocking the signal, in response to the rotation of the wipers. (Col. 2, L. 1-45) Circuit leakage is found, for example: Signal W leaks into D3 via R21 and 22 when 31 is adjusted to a mid tap position between ground and -E. This circuit leakage causes the amount of conduction of diode D3 to be modulated by Signal W when 31 is adjusted between ground and -E to forward bias D3. The portion of signal passed by D3 is responsive to three factors, the control voltage from 31, leakage of W via 21, and the amplitude of signal Y applied to D3.

The Examiner has suggested that it would be obvious to connect variable resistor 35 to bias supply to vary the amount of turn on of electronic switches, rather than the diodes used in Paine. Applicant however, does not believe that such a modification would be obvious to one skilled in the art.

The Examiner states that it is a known modification of the variable resistance to substitute it with electronic switches that control resistance ... through

accordingly, nor does the Examiner suggest any device which could be used for this purpose, or how to overcome the various technical problems of such a substitution. Applicant does not find any suggestion of such devices in the cited art or to make such substitutions. Even if some substitution of the nature suggested by the Examiner were made, there is no teaching of the use of such in combination with the rest of the elements of the present invention.

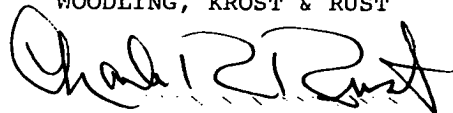
Applicant's claims which recite a structure similar to Paine have been amended to recite distinguishing features of the invention. For example: Claim 1 specifies that the portion means linearly passes portions of the phase shifted signals. Claims 13 and 16 recite the use of multipliers. Claims 15 and 21 recite a resistance element coupled to the phase shifted signals. Claim 17 recites the impedance means providing an impedance from an input to an adjustment element. These features are all missing from Paine.

In that Applicant believes that all of the claims are in condition for allowance, favorable action in that respect is solicited.

/////

Respectfully submitted,

WOODLING, KROST & RUST



Charles R. Rust, Reg. No. 18,716

CRR:ec